AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) An external fixation apparatus comprising:

a pivot arm comprising: an upper portion ~~with a ball end~~ having a first end portion and a second opposite end portion having a first recess formed therein; and a lower portion having a third end portion with a prong end and a ~~second~~ fourth opposite end portion having a second recess formed therein, wherein the lower portion and upper portion are secured together with the first and second recesses adjacent one another to form an internal recess in the pivot arm;

~~a carriage within the internal recess such that a position of one of the upper and lower portions of the pivot arm with respect to a longitudinal axis of the pivot arm is adjusted when the carriage is moved; and~~

a pin clamp coupled to and rotatable about the prong end of the third end portion ~~pivot arm through a lockable joint~~, the pin clamp being attachable to a bone ~~segment.~~ segment; and

a carriage unit located within the internal recess, the carriage unit operatively connected to the upper portion and to the lower portion, and the carriage unit having a first adjustment member for adjustment of at least one portion of the pivot arm in a medial-lateral direction and a second adjustment member for adjustment of at least one portion of the pivot arm in an anterior-posterior direction.

2-3. (Cancelled)

4. (Currently Amended) The external fixation apparatus of claim 1, wherein the first adjustment member and the second adjustment member each comprise ~~the pivot arm further comprises~~:

a worm gear ~~received in each of two threaded holes in the carriage~~; and

a keybolt ~~keybolts that operate each worm gear such that the carriage may be moved transversely to the longitudinal axis in one dimension within the upper recess and transversely to the longitudinal axis in another dimension within the lower recess~~.

5. (Currently Amended) The external fixation apparatus of claim 1, wherein the prong end of the lower portion of the pivot arm ~~has only~~ consists essentially of a single prong.

6-16. (Cancelled)

17. (Original) The external fixation apparatus of claim 1, wherein the pin clamp is symmetrical or asymmetrical.

18. (Currently Amended) An external fixation apparatus comprising:

a pivot arm comprising a first end portion and a second end portion, the second end portion comprising a shaft with a free end extending transversely from and maintaining a fixed spatial relationship with the second end portion of the pivot arm, the shaft comprising a groove extending substantially around a circumference of the shaft, and wherein the first and second end portions are configured to translate transversely relative to one another and to a

longitudinal axis of the pivot ~~arm~~ arm, the first end portion adapted to move in an anterior-posterior direction and the second end portion adapted to move in a medial-lateral direction; and

a pin clamp attachable to a bone segment and releasably attachable to and rotatable about the shaft extending from the pivot arm, the pin clamp comprising:

a first jaw and a second jaw, the first jaw including a hole that receives the shaft; and

a locator pin positioned within the first jaw such that the locator pin is externally accessible for manual manipulation during use of the pin clamp ~~via a pushbutton coupled to an end of the locator pin or an enlarged knob on an end of the locator pin~~, wherein the locator pin is received within the groove of the shaft when the pivot arm and the pin clamp are coupled and removed from the groove to disengage the pin clamp from the pivot arm.

19. (Previously Presented) The external fixation apparatus of claim 18, further comprising a first bolt that passes through openings in the first and second jaws such that tightening of the first bolt interferes with the shaft and locks rotation of the pin clamp about the pivot arm.

20. (Currently Amended) The external fixation apparatus of claim 18, wherein ~~translation of the first and second end portions is possible in at least two dimensions and~~ the pivot arm further comprises:

an upper recess and a lower recess;

a carriage that fits within the upper recess and the lower recess ~~of the pin clamp~~, the carriage including two threaded holes, each threaded hole receiving a worm gear; and

keybolts that operate each worm gear such that the carriage moves transversely relative to the longitudinal axis in one dimension within the upper recess and transversely relative to the longitudinal axis in another dimension within the lower recess.

21. (Previously Presented) The external fixation apparatus of claim 18, wherein the locator pin is pulled to allow for release of the pivot arm from the pin clamp.

22. (Cancelled)

23. (Currently amended) The external fixation apparatus of claim 19, wherein the pin clamp further comprises second and third bolts that hold the first and second jaws together and attach and clamp pins or wires to the ~~second~~ bone segment.

24. (Original) The external fixation apparatus of claim 23, wherein the pin clamp further comprises openings in the first and second jaws that receive biasing elements and threaded ends of the second and third bolts.

25. (Currently Amended) An external fixation system for attaching pins or wires to at least one bone segment, the system comprising:

a first member;

a second member coupled to the first member, the second member comprising a shaft that extends transversely from an end portion of the second member and has a groove extending substantially around a circumference of the shaft; and

a pin clamp attachable to and detachable from the shaft of the second member, the pin clamp comprising:

a first jaw and a second ~~jaw~~ jaw, the first jaw having a central portion and two opposed jutting portions, the central portion having a bore adapted to receive the shaft and a hole located transverse to the bore; and

~~a hole in the first jaw configured to receive the shaft; and~~

a ~~push or pull~~ release mechanism that is positioned within the first jaw and is externally accessible for manual manipulation during use of the pin clamp, the ~~push or pull~~ release mechanism comprising a locator ~~pin~~ pin, a stop connected to the locator pin and located within the hole, and a biasing element, wherein the biasing element is adapted to bias the stop toward the groove ~~that is received within the groove of the shaft~~ when the second member and the pin clamp are coupled ~~and removed from the groove to disengage the pin clamp from the second member~~.

26-27. (Cancelled)

28. (Previously Presented) The system of claim 25, wherein the second member has at least one other end portion and the end portions may be translated transversely relative to a longitudinal axis of the second member in at least two dimensions.

29. (Previously Presented) The system of claim 25, wherein the locator pin is pulled manually by the user to allow for release of the shaft from the pin clamp.

30. (Currently Amended) A method of treating a skeletal condition or injury using an external fixation apparatus, the method comprising:

(a) fixing a first member to a first side of a fracture with upper bone pins;

(b) fixing a pin clamp to a second side of the fracture with lower bone pins;

(c) providing a pivot arm comprising an upper portion with a ball end and a second end opposite the ball end with a first recess formed in the second end and a lower portion with a prong end and a second end opposite the prong end with a second recess formed in the second end, where the upper and lower portions are secured together with the first and second recesses adjacent one another to form an internal recess in the pivot arm;

(d) coupling the pin clamp to the first member through the use of ~~a~~ the pivot arm, wherein the lower portion of the pivot arm is coupled directly to the pin clamp; ~~and~~

(e) moving a carriage that is within the internal recess of the pivot arm to adjust a position of one of the upper and lower portions of the pivot arm with respect to a longitudinal axis of the pivot ~~arm.~~ arm in an anterior-posterior direction; and

(f) moving the carriage that is within the internal recess of the pivot arm to adjust a position of one of the upper and lower portions of the pivot arm with respect to a longitudinal axis of the pivot arm in a medial-lateral direction.

31. (Previously Presented) The method of claim 30, further comprising rotating the pin clamp as desired for placement of the lower bone pins.

32. (Original) The method of claim 30, wherein the pin clamp is fixed prior to the fixing of the first member.

33. (Cancelled)

34. (Previously Presented) The apparatus of claim 1, wherein the pin clamp further comprises a push/pull mechanism having at least one end externally accessible during use for releasably coupling the pin clamp.

35-41. (Cancelled)

42. (Previously Presented) The system of claim 25, wherein the pin clamp further comprises:

openings in each of the first and second jaws; and

biasing elements received within the openings, the biasing elements adapted to bias the first and second jaws toward each other.

43. (Previously Presented) The system of claim 42, wherein the pin clamp further comprises first and second bolts that extend into the openings in the first and second jaws, the first and second bolts configured to compress the biasing elements and hold the first and second jaws together.

44. (Previously Presented) The system of claim 25, wherein the locator pin further comprises an enlarged knob end that is manually pulled to remove an opposite end of the locator pin from the groove of the shaft.

45-47. (Cancelled)

48. (Previously Presented) The system of claim 25, wherein the pin clamp snap fits onto the shaft of the second member.

49. (New) The external fixation apparatus of claim 1, wherein the first adjustment member is adjustable independently of the second adjustment member.

50. (New) An external fixation apparatus comprising:

a pivot arm having an upper portion and a lower portion;

a shaft connected to the lower portion, the shaft having a circumferential grove;

a pin clamp removably attached to the shaft, the pin clamp comprising a first jaw and a second jaw, the first jaw having a central portion and two opposed jutting portions, the central portion having a bore adapted to receive the shaft and a stepped hole located transverse to the bore;

a stop located within the stepped hole, the stop adapted to slide within the stepped hole and selectively engage the circumferential groove;

a biasing element placed within the stepped hole to bias the stop into positive engagement with the circumferential groove; and

a locator pin connected to the stop for selective movement of the stop out of contact with the groove.

51. (New) An external fixation apparatus comprising:

a pivot arm having an upper portion, a lower portion, and an internal recess;

a pin clamp removably attached to the lower portion;

a carriage unit located within the internal recess, the carriage unit operatively connected to the upper portion and to the lower portion, and the carriage unit having a first adjustment member for adjustment of at least one portion of the pivot arm in a medial-lateral direction and a second adjustment member for adjustment of at least one portion of the pivot arm in an anterior-posterior direction.

52. (New) An external fixation apparatus comprising:

a pivot arm having an upper portion, a lower portion, and an internal recess;

a shaft connected to the lower portion, the shaft having a circumferential grove;

a pin clamp removably attached to the shaft of the second member, the pin clamp comprising a first jaw and a second jaw, the first jaw having a central portion and two opposed jutting portions, the central portion having a bore adapted to receive the shaft and a stepped hole located transverse to the bore;

a stop located within the stepped hole, the stop adapted to slide within the stepped hole and selectively engage the circumferential groove;

a biasing element placed within the stepped hole to bias the stop into positive engagement with the circumferential groove;

a locator pin connected to the stop for selective movement of the stop out of contact with the groove; and

a carriage unit located within the recess, the carriage unit operatively connected to the upper portion and to the lower portion, and the carriage unit having a first adjustment member for adjustment of at least one portion of the pivot arm in a medial-lateral direction and a second adjustment member for adjustment of at least one portion of the pivot arm in an anterior-posterior direction.

53. (New) An external fixation apparatus comprising:

a pivot arm having an upper portion and a lower portion, the upper portion having a first end portion and a second opposite end portion having a first recess formed therein; and the lower portion having a third end portion with a prong end and a fourth opposite end portion having a second recess formed therein, wherein the lower portion and upper portion are secured together with the first and second recesses adjacent one another to form an internal recess in the pivot arm;

a pin clamp removably attached to the lower portion; and

a carriage within the internal recess, the carriage comprising a first worm gear, a second worm gear, a first keybolt corresponding to the first worm gear, and a second keybolt corresponding to the second keybolt, wherein the upper portion may be translated relative to the lower portion in at least two independent directions.

54. (New) An external fixation apparatus comprising:

a pivot arm having a longitudinal axis, an upper portion and a lower portion, the upper portion having a ball end and a second opposite end having a first recess formed therein, the lower portion with a prong end and a second opposite end having a recess formed therein,

wherein the lower portion and upper portion are secured together with the first and second recesses adjacent one another to form an internal recess in the pivot arm;

a carriage within the internal recess, the carriage comprising a first worm gear, a second worm gear, a first keybolt corresponding to the first worm gear, and a second keybolt corresponding to the second keybolt, wherein rotation of the first keybolt moves the lower portion in a medial-lateral direction and rotation of the second keybolt moves the upper portion in an anterior-posterior direction;

a shaft connected to the prong end, the shaft having a circumferential grove;

a pin clamp removably attached to the shaft of the second member, the pin clamp comprising a first jaw and a second jaw, the first jaw having a central portion and two opposed jutting portions, the central portion having a bore adapted to receive the shaft and a stepped hole located transverse to the bore;

a stop located within the stepped hole, the stop adapted to slide within the stepped hole and selectively engage the circumferential groove;

a biasing element placed within the stepped hole to bias the stop into positive engagement with the circumferential groove; and

a locator pin connected to the stop for selective movement of the stop out of contact with the groove.